Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Indian Camp Creek

Waterbody Segment at a Glance:

County: Warren
Nearby Cities: Wright City
Length of impairment: 1.5 miles
Pollutants: Ammonia, Non-Volatile Suspended Solids (NVSS)
Source: JZ Landfill

Pollutant change from sediment to NVSS

TMDL Priority Ranking: High


State map showing location of watershed

Description of the Problem

Beneficial uses of Indian Camp Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

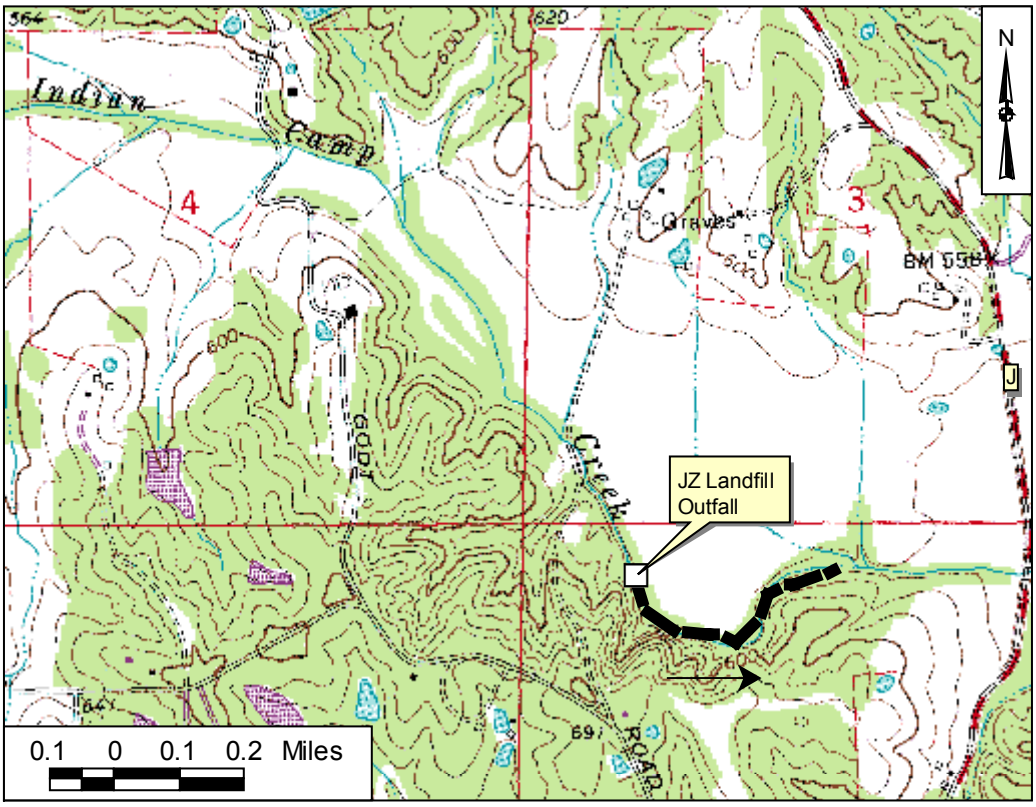
- The Missouri Water Quality Standards (WQS) for ammonia vary depending on the pH and the temperature. As an example of typical limits, the ammonia limits for a Limited Warm Water Fishery (at a pH of 7.8) are 2.0 mg/L (milligrams per liter or parts per million) for summer and 3.3 mg/L during the winter. The ammonia tables are found in the WQS at 10 CSR 20-7.031 Table B.
- Standards for Non-Volatile Suspended Solids may be found in the general criteria section of the WQS, 10 CSR 20-7.031(3)(A) and (C) where it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

The JZ Landfill is a closed landfill that is located on high ground adjacent to Indian Camp Creek. The landfill operator did not close the landfill according to Department of Natural Resources requirements, and leachate from the landfill discharges to the creek. Water quality monitoring of Indian Camp Creek near the landfill has indicated that soil erosion from the landfill and ammonia nitrogen (NH_3-N) in the leachate have been a problem in the stream. The proposed list change from sediment to Non-Volatile

Suspended Solids (NVSS) was made to better distinguish between organic solids coming from wastewater treatment plants and the mineral solids (like silt, sand or gravel) coming from soil erosion. NVSS are the mineral solids. When these solids get into a stream, they settle onto the bottom and smother natural substrates (materials in the streambed), aquatic invertebrate animals and fish eggs.

An inspection in 1994 indicated a concentration of 57 milligrams per liter (mg/L or parts per million) NH_3-N in the leachate and 16 mg/L NH_3-N in the stream. These levels are high and under certain conditions NH_3-N can be toxic to aquatic life. Additionally, there was a slight orange color to the leachate and it failed an acute toxicity test. The department instigated compliance and enforcement activities against the landfill operator, and water quality monitoring of the creek. In the 2001 monitoring results, the NH_3-N samples were all less than 0.05 mg/L, so improvements are occurring.

Map of Impaired Segment of Indian Camp Creek in Warren County, Missouri



For more information call or write:
Missouri Department of Natural Resources
Water Pollution Control Program
P.O. Box 176, Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-1300 office
(573) 751-9396 fax
Program Home Page: www.dnr.state.mo.us/wpscd/wpcp/index.html